

IN THE CLAIMS:

Cancel Claims 1-28.

Add the following new claims:

5 29. An electronically programmable remote control access system for controlling access to a secured area, comprising:

10 a portable hand-held transmitter comprising means for generating and transmitting a predetermined digitally encoded, radio frequency, receiver-responsive signal representative of a predetermined transmitter code, and actuating means for actuating said generating and transmitting means so that said signal is automatically generated and transmitted upon actuation; and

15 an access control unit, comprising:

20 (i) receiving means operable during a system program mode and a system operating-receiving mode for receiving said transmitted encoded signal and generating an electrical signal representative of the encoded signal;

(ii) memory means for storing data representative of signature control signals;

25 (iii) programming means activated only during said system program mode for automatically storing in said memory means received signals representative of said predetermined transmitter code as a signature control signal;

30 (iv) operating means activated during said operating-receiving mode for comparing received electrical signals with said signature control signal stored in said memory means to determine if said electrical signals correspond to said recorded signature control signal; and

wherein said transmitter and said receiving means cooperate to form a one-way radio frequency signal transmission link for communicating signals only from said transmitter to said receiving means, said transmission link being employed by said system during said programming mode for transmitting said encoded signals from said transmitter to said access control unit to be stored in said memory as said signal control signals, said link further employed during said operating receiving mode for transmitting said encoded signals from said transmitter to said control unit.

30. The remote control access system of Claim 29 further characterized in that said access control unit is operable in the program mode to record a plurality of different transmitter codes.

31. The remote control access system of Claim 29 further characterized in that said access control unit comprises a user-accessible switch disposed in said secured area, and said access control unit is responsive to the position of said switch for entering said program mode.

32. The remote control access system of Claim 31 further characterized in that said program mode is automatically terminated after a predetermined time delay from receipt of a transmitted encoded signal during said program mode.

33. The remote control access system of Claim 29 further characterized in that said access control unit is responsive to signature control signals received from a plurality of transmitters when the receiver is in the

5 program mode for automatically recording each of the
signature control signals from the plurality of transmit-
ters as valid signature control signals, so that in the
operating-receiving mode, the transmitted encoded signals
10 and compared against each of said plurality of recorded
signature control signals to determine if a valid signa-
ture control word has been received, said plurality of
transmitters and said receiving means being operable at
the same radio frequency.

34. The remote control access system of Claim 33
further characterized in that certain of said transmitters
generate encoded signals which will access only certain
areas and certain other of said transmitters generate
5 encoded signals which enable access to other areas.

35. The remote control access system of Claim 29
further characterized in that said transmitter is capable
of generating a plurality of different encoded signals,
and said access control unit is operable in said program
5 mode to record said plurality of different encoded
signals.

36. The remote control access system of Claim 35
wherein said operating means further comprises means for
arming or disarming said system in response to received
signals corresponding to said signature control signals
5 stored in said memory, and said means for arming or
disarming is activated only in response to received
signals corresponding to each of said plurality of stored
signature control signals.

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37. The remote control access system of Claim 29 wherein said transmitter is suitably encoded with said predetermined transmitter code by the manufacturer thereof so that the system user is not required to encode said transmitter.

38. An electronically programmable remote control access system for controlling access to a secured area, in which a receiver and a control unit therefore are operable upon receipt of a proper transmitted encoded signal from any of a plurality of transmitters to arm or disarm said system, said system comprising:

at least one first transmitter capable of transmitting a first receiver responsive, radio frequency, digitally encoded signal comprising an N-bit digital code word for arming and disarming said system, said transmitter comprising actuating means for actuating said transmitting of said signal so that said first signal is automatically transmitted upon actuation;

at least one second transmitter capable of generating and transmitting a second receiver responsive, radio frequency, digitally encoded signal comprising an M-bit digital code word for arming and disarming said system, said second transmitter comprising actuating means for actuating said transmitting of said second signal so that said first signal is automatically transmitted upon actuation;

wherein N and M are each integer values and N need not equal M;

a receiver remote from the transmitters and responsive to the transmitted radio frequency encoded signals during a system programming mode and a system operating-receiving mode for generating

30 electrical signals corresponding to each of the
respectively encoded signals;

35 said receiver and said first and second trans-
mitters comprising at least first and second one-way
radio frequency signal transmission links for
communicating signals only from said first or second
transmitters to said receiver during said system
programming and system operating-receiving modes;
and

40 a control unit operatively associated with the
receiver, said control unit comprising:

(i) means for decoding said electrical
signals to generate respective decoded digital
signals representative of said N-bit code word
and said M-bit code word;

45 (ii) means operable in said system program
mode for automatically recording said respec-
tive decoded digital signals received and
decoded during said program mode as first and
second signature control signals representative
50 of said N-bit code word and said M-bit code
word; and

55 (iii) means activated during an operating-
receiving mode for comparing received and
decoded signals to said first and second
signature control signals which have been
previously recorded during said program mode to
determine if said decoded digital signals
correspond to either of the recorded signature
control signals and thereby represent valid
60 signals for arming or disarming said system.

39. The remote control access system of Claim 38
further characterized in that said control unit is a
microprocessor operated control unit.

40. The remote control access system of Claim 38 further characterized in that the system is user programmable such that the user of any transmitter may initially record the encoded signal from that transmitter as a signature control signal in the control unit by simple actuation of the transmitter when the system is in said program mode, only requiring the transmission of the encoded signal from the transmitter for recording as a valid signature control signal.

41. The remote control access system of Claim 40 further characterized in that said system is provided with a switch disposed in said secured area to put the receiver in the program mode.

42. The remote control access system of Claim 41 further characterized in that said system program mode is automatically terminated after a pre-established time delay from receipt of a transmitted encoded signal during said program mode.

43. The remote control access system of Claim 38 wherein said first and second transmitters are respectively suitably encoded with said N-bit and said M-bit digital codes by the respective manufacturer thereof so that the system user is not required to encode said respective transmitters.

44. A user-controlled access system in which a receiver is capable of generating a responsive action in the event of unauthorized intrusion in a secured area, said system comprising:

a portable hand-held transmitter capable of generating and transmitting a radio frequency receiver responsive signal which is digitally

encoded, said signal comprising an N-bit binary-value code word;

10 a receiver remote from the transmitter and responsive during a system program mode and a system operating receiving mode to the transmitted radio frequency encoded signal and generating an electrical signal representative of the encoded signal,
15 said transmitter and said receiver comprising a one-way radio frequency transmission link for communicating signals only from said transmitter to said receiver; and

20 a microprocessor-based control unit operatively associated with the receiver, said control unit comprising means operable during said operating receiving mode for decoding the generated electrical signals of at least two successive transmitted signals and generating decoded signals therefrom,
25 means for comparing the decoded signals to each other and to a valid signature control signal previously recorded in the control unit during said program mode to determine if the decoded signals represent valid signals, said control unit recognizing
30 a valid signal if each of two successive encoded signals are identical to each other and to said previously recorded signature control signal, and means for recognizing said decoded signals as invalid if they are not identical to each other and
35 to the previously recorded signature control signal.

45. The remote control access system of Claim 44 further characterized in that said system is user programmable with an encoded signal, said system being operable in said program mode where it is capable of having an
5 encoded signal from a transmitter recorded as a signature control signal and in said operating-receive mode where it

is capable of enabling or disabling said system in response to receipt of successive decoded signals corresponding to a recorded signature control signal.

5 46. The remote control access system of Claim 45 further characterized in that said control unit is operable to record a decoded signal as a signature control signal when the system is in the program mode by only requiring the transmission of the encoded signal from the transmitter for recording as a signature control signal.

5 47. The remote control access system of Claim 46 further characterized in that said receiver and control unit are operable in the program mode to record a plurality of different transmitter encoded signals of different code bit lengths as valid signature control words and operable in the operating-receive mode to decode and compare said decoded signals of different bit lengths to each of said recorded signature control signals.

48. The remote control access system of Claim 44 further characterized in that said system is provided with a manually operable switch disposed in said secured area to put the system in the program mode.

5 49. The remote control access system of Claim 48 further characterized in that said program mode is automatically terminated after a predetermined time delay from receipt of a transmitted encoded signal during said program mode.

50. The remote control access system of Claim 44 further characterized in that said control unit is responsive to receiving signature control signals from a plurality of transmitters when the system is in the program mode

5 to have the signature control signals from each of the plurality of transmitters recorded as signature control signals, and in the operating-receive mode, the subsequently decoded signals are compared against each of recorded signature control signals.

5 51. A user control access system in which a receiver and a control unit therefore are operable upon receipt of a proper transmitted encoded signal from any of a plurality of transmitters to arm and disarm the system, said system comprising:

at least one first transmitter capable of generating and transmitting a first radio frequency receiver responsive signal, said signal comprising a first digital code word;

10 at least one second transmitter capable of generating and transmitting a second radio frequency receiver responsive digitally encoded signal for arming and disarming said system, said second signal comprising a second digital code word;

15 a receiver remote from said transmitters and responsive to the transmitted encoded signals for generating electrical signals respectively representative of the encoded signals, said receiver and said first and second transmitters comprising at least first and second one-way radio frequency signal transmission links for communicating signals from said first or second transmitters to said receiver; and

20 a control unit operatively associated with the receiver, said control unit comprising means for decoding the generated electrical signals to generate decoded digital signals, means for enabling access to a first predetermined area if the encoded signal from the first transmitter corresponds to a

30 first recorded signature control signal correspond-
 ing to said first digital code word, and means for
 enabling access to a second predetermined area if
 the encoded signal from a second transmitter corre-
 sponds to a second recorded signature control signal
 35 corresponding to said second digital code word and
 is also thereby a valid signal.

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 51. The remote control access system of Claim 51
 further characterized in that the receiver and control
 unit are operable in a program mode to record the encoded
 transmitted signals as signature control signals and in an
 5 operating-receiving mode to compare subsequently received
 transmitted signals to the recorded signature control
 signals, and the signature control signals which have been
 previously recorded in the control unit are generated from
 the same individual transmitters and encoders associated
 10 therewith and recorded in the control unit when the latter
 are operable in the program mode.

53. A method of operating a user programmable
 remote control access system in which an encoded signal
 from a transmitter may be recorded as a signature control
 signal in an access control unit, said method comprising:

5 generating a receiver responsive digitally
 encoded signal;

transmitting the generated receiver responsive
 encoded signal from a radio frequency, hand-held
 portable transmitter;

10 locating a radio frequency receiver responsive
 to the transmitted encoded signal in a position to
 receive the transmitted signal so that said trans-
 mitter and said receiver form a one-way radio
 frequency signal transmission link, and providing an
 15 access control unit associated with the receiver;

operating said system in a program mode for recording any received encoded signal as a signature control signal in said access control unit;

20 generating an electrical signal at the receiver which is representative of the encoded signal;

decoding the electrical signal to provide a decoded signal;

25 recording the decoded signal as a signature control signal in said control unit when the system is operable in a program mode by only requiring the transmission of the encoded signal from the transmitter for recording as a signature control signal; and

30 operating said system in a receive mode to decode further electrical signals representative of the encoded signals and compare the decoded signals to the recorded signature control signal, to determine if the decoded signal corresponds to the recorded signature control signal and thereby
35 represents a valid signal, or if the decoded signal does not correspond to the recorded control signal and thereby represents an invalid signal.

54. An automotive vehicle security system in which an access control unit is responsive to receipt of a proper transmitted encoded radio frequency signal from a transmitter to arm or disarm said system, comprising:

5 a portable hand-held transmitter comprising means for generating and transmitting a predetermined digitally encoded, radio frequency, receiver-responsive signal representative of a predetermined transmitter code, and actuating means for actuating
10 said generating and transmitting means so that said signal is automatically generated and transmitted upon actuation; and

an access control unit located within said vehicle, comprising:

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(i) radio frequency signal receiving means operable during said program mode and during said system operating-receiving mode for receiving said transmitted encoded signal and generating an electrical signal representative of the encoded signal;

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(ii) memory means for storing signature control signals;

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(iii) programming means activated only during a system program mode for automatically storing in said memory means said electrical signals representative of said radio frequency, receiver-responsive received signals representative of said predetermined transmitter code as a signature control signal; and

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(iv) operating means activated during an operating-receiving mode for comparing received electrical signals with said signature control signal stored in said memory means to determine if said electrical signals correspond to said recorded signature control signal and for arming or disarming said system if said electrical signals correspond to said recorded signature control signal, wherein said transmitter and said receiver means cooperate to form a one-way radio frequency signal transmission link for communicating signals only from said transmitter to said receiving means, said transmission link being employed by said system during said programming mode for transmitting said signal representative of said transmitter code to said access control unit to be stored in said memory means as signature

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50 control signals, said link further employed during said operating-receiving mode for transmitting said encoded signal from said transmitter to said access control unit.

5 55. The security system of Claim 49 further characterized in that said access control unit is operable in the program mode to record a plurality of different transmitter codes from a plurality of different transmitters.

5 56. The security system of Claim 54 wherein said access control unit is hidden from view within said vehicle at a relatively secure location not visible either from outside the vehicle or from passenger locations within the passenger compartment of said vehicle, and said system further comprises a switch accessible only within said vehicle for selective actuation by the system operator, said access control unit being responsive to actuation of said switch for entering the program mode.

57. The security system of Claim 56 further characterized in that said program mode is automatically terminated after a predetermined time delay from receipt of a transmitted encoded signal.

5 58. The security system of Claim 54 further characterized in that said access control unit is responsive to signature control signals received from a plurality of transmitters when the access control unit is in the program mode for automatically recording each of the signature control signals from the plurality of transmitters as valid signature control signals, so that in the operating-receiving mode, the transmitted encoded signals from any of said plurality of transmitters are received

10 and compared against each of said plurality of recorded signature control signals to determine if a valid signature control word has been received.

59. The security system of Claim 56 further characterized in that said transmitter is capable of generating a plurality of different encoded signals.

60. The security system of Claim 54 wherein said predetermined transmitter code comprises a non-user-programmable N-bit digital code word.

61. The security system of Claim 54 wherein said transmitter is suitably encoded with said transmitter code by the manufacturer thereof so that the system user is not required to encode said transmitter.

REMARKS

Various corrections of a minor nature have been made to the specification to correct for grammatical and typographical errors and conform the description of certain circuit elements to the drawings.

Claims 1-28 stand rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention. The claims also stand rejected under 35 USC 103 as being unpatentable over Twardowski, Pinnow or combinations thereof.

Claims 1-28 have been cancelled in favor of new Claims 29-61. The outstanding rejections are considered to have been mooted by the cancellation of the original claims and the presentation of these new claims. The new claims are believed to comply with 35 USC § 112, and are drawn to subject matter which is patentably distinct from the prior art references of record.